

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:

Jonathan S. Stamler, Joseph Bonaventura, John R. Pawloski
and Timothy J. McMahon

Application No.: 10/045,603

Group Art Unit: 1651

Filed: October 23, 2001

Examiner: Unknown

Confirmation No.: 3692

Title: Red Blood Cells Loaded With S-Nitrosothiol and Uses Therefor

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CERTIFICATE OF MAILING	
I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to Assistant Commissioner for Patents, P.O. Box 2327, Arlington, VA 22202	
on 11/8/02	Wendy Morrissey
Date	Signature
Wendy Morrissey	
Typed or printed name of person signing certificate	

INFORMATION DISCLOSURE STATEMENT

Assistant Commissioner for Patents
P.O. Box 2327
Arlington, VA 22202

Sir:

This Information Disclosure Statement is submitted:

☐ under 37 CFR 1.129(a), or

(First/Second submission after Final Rejection)

☒ under 37 CFR 1.97(b), or

(Within any one of the following time periods: three months of filing national application (other than a CPA) or date of entry of the national stage in an international application; or before the mailing date of a first office action on the merits in a non-provisional application, including a CPA, or a Request for Continued Examination).

☐ under 37 CFR 1.97(c) together with either:

☐ a Statement under 37 CFR 1.97(e), as checked below, or

☐ a \$180.00 fee under 37 CFR 1.17(p), or

(After the 37 CFR 1.97(b) time period, but before final action or notice of allowance, whichever occurs first)

☐ under 37 CFR 1.97(d) together with:

☐ a Statement under 37 CFR 1.97(e), as checked below, and

☐ a \$180.00 fee under 37 CFR 1.17(p), or

(Filed after final action or notice of allowance, whichever occurs first, but on or before payment of the issue fee)

☐ under 37 CFR 1.97(i):

Applicant requests that the IDS and cited reference(s) be placed in the application filewrapper.

(Filed after payment of issue fee)

Statement Under 37 CFR 1.97(e)

- ☐ Each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement; or
- ☐ No item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned, after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of this Information Disclosure Statement.

Statement Under 37 CFR 1.704(d) (Patent Term Adjustment)

Applies to original applications (other than design) filed on or after May 29, 2000

- ☐ Each item of information contained in the Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application and this communication was not received by any individual designated in § 1.56(c) more than thirty days prior to the filing of the Information Disclosure Statement.
- ☒ Enclosed herewith is form PTO-1449:
- ☐ Copies of the cited references are enclosed.
- ☒ Copies of cited references AI, AQ2, AY3, AZ3 and AR4 are enclosed. Other cited references were entered in prior applications, U.S. Application No. 09/724,305, U.S. Application No. 08/873,679 and U.S. Application No. 08/616,255, to which priority under 35 U.S.C. 120 is claimed. The earlier application files contain copies of the cited references which are not enclosed with this paper.
- ☐ The listed references were cited in the enclosed International Search Report in a counterpart foreign application.
- ☐ The "concise explanation" requirement (non-English references) for reference(s) ☐ under 37 CFR 1.98(a)(3) is satisfied by:
- ☐ the explanation provided on the attached sheet.
- ☐ the explanation provided in the Specification.
- ☐ submission of the enclosed International Search Report.
- ☐ submission of the enclosed English-language version of a foreign Search Report and/or foreign Office Action.
- ☐ the enclosed English language abstract.

- ☒ Applicant requests that the following pending applications be considered:

Examiner's
Initials

_____ U.S. Patent Application No. 08/616,371, by Jonathan S. Stamler, filed March 15, 1996
(not published)

_____ U.S. Patent Application No. 08/796,164, by Jonathan S. Stamler and Andrew J. Gow,
filed February 6, 1997 (not published)

U.S. Patent Application No. 08/874,992, by Jonathan S. Stamler and Andrew J. Gow,
filed June 12, 1997 (not published)

U.S. Patent Application No. 09/369,966, by Jonathan S. Stamler and Andrew J. Gow,
originally filed August 6, 1999 (CPA filed October 30, 2001 and published as Publication
No. 20020037839 on March 28, 2002)

U.S. Patent Application No. 10/066,320, by Jonathan S. Stamler, Andrew J. Gow and
David J. Singel, filed January 31, 2002 (not published)

Examiner

Date

- ☐ A copy of each above-cited application, including the current claims, is enclosed.
- ☒ A copy of each above-cited application, including the current claims, is enclosed, except
for 08/616,371 and 08/796,164, which were entered in the parent application, U.S.
Application No. 09/724,305, to which priority under 35 U.S.C. 120 is claimed.

The Examiner is requested to return a copy of the above list of pending applications, indicating which
references were considered, with the next office communication.

It is requested that the information disclosed herein be made of record in this application.

Method of payment:

- ☐ A check for the fee noted above is enclosed, or the fee has been included in the check with the
accompanying Reply. A copy of this Statement is enclosed.
- ☐ Please charge Deposit Account 08-0380 in the amount of \$[]. A copy of this Statement is
enclosed.
- ☒ Please charge any deficiency in fees and credit any overpayment to Deposit Account 08-0380.

Respectfully submitted,

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Dated: November 8, 2002

PTO-1449 REPRODUCED

ATTORNEY DOCKET NO.
1818.1009-009

APPLICATION NO.
10/045,603

INFORMATION DISCLOSURE CITATION
IN AN APPLICATION

October 29, 2002

(Use several sheets if necessary)

APPLICANT
Jonathan S. Stamler, et al.

FILING DATE
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CONFIRMATION NO.
3692

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U.S. PATENT DOCUMENTS

EXAM- INER INI- TIAL		DOCUMENT NUMBER	ISSUE DATE / PUBLICATION DATE	NAME
	AA	5,380,758	01/10/95	Stamler, et al.
	AB	5,405,919	04/11/95	Keefer, et al.
	AC	4,900,719	02/13/90	Means, et al.
	AD	5,593,876	01/14/97	Stamler, et al.
	AE	5,480,866	01/02/96	Bonaventura, et al.
	AF	5,427,797	06/27/95	Frostell, et al.
	AG	5,574,068	11/12/96	Stamler, et al.
	AH	6,197,745	03/06/01	Stamler, et al.
	AI	6,291,424	09/18/01	Stamler, et al.

FOREIGN PATENT DOCUMENTS

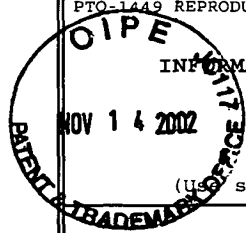
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION YES NO
	AL	WO 96/16645	06-Jun-96	PCT			
	AM	WO 96/15797	30-May-96	PCT			
	AN	WO 96/17604	13-Jun-96	PCT			
	AO	WO 93/09806	27-May-93	PCT			
	AP	WO 93/12068	24-Jun-93	PCT			
	AQ	EP 0604143	29-Jun-94	EPO			

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

	AR	Stamler, J. et al., "S-Nitrosylation of Proteins with Nitric Oxide: Synthesis and Characterization of Biologically Active Compounds," <i>Proc. Natl. Acad. Sci. USA</i> , 89:444-448 (1992)
	AS	Langford, E.J. et al., "Inhibition of Platelet Activity by S-Nitrosoglutathione During Coronary Angioplasty," <i>The Lancet</i> , 344:1458-1460 (1994)
	AT	Ribeiro, J.M.C. et al., "Reversible Binding of Nitric Oxide by a Salivary Heme Protein from a Bloodsucking Insect," <i>Science</i> , 260:539-541 (1993)

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DATE CONSIDERED



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FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION YES NO
AL2	WO 94/22499	13-Oct-94	PCT			
AM2	WO 94/22482	13-Oct-94	PCT			
AN2	WO 94/22306	13-Oct-94	PCT			
AO2	WO 96/30006	03-Oct-96	PCT			
AP2	WO 97/10265	20-Mar-97	PCT			
AQ2	WO 98/34955	13-AUG-98	PCT			

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

AU	Olsen, S.B. et al. "Enhancement of Platelet Deposition by Cross-Linked Hemoglobin in a Rat Carotid Endarterectomy Model," <i>Circulation</i> , 93 (2):327-332 (1996)
AV	Scharfstein, J. et al., "In Vivo Transfer of Nitric Oxide Between a Plasma Protein-Bound Reservoir and Low Molecular Weight Thiols," <i>J. Clin. Invest.</i> , 94:1432-1439 (1994)
AW	Charache, S. et al., "Evaluation of Extracorporeal Alkylation of Red Cells as a Potential Treatment for Sickle Cell Anemia," <i>Blood</i> , 47(3):481-488 (1976)
AX	Kosaka, H. et al., "ESR Spectral Transition by Arteriovenous Cycle in Nitric Oxide Hemoglobin of Cytokine-Treated Rats," <i>Am. J. Physiol.</i> , 266(5):1400-1405 (1994)
AY	Doyle, M.P. et al., "Structural Effects in Alkyl Nitrite Oxidation of Human Hemoglobin," <i>J. Biol. Chem.</i> , 259(1):80-87 (1984)
AZ	Greenburg, A.G. and Kim, H.W., "Nitrosyl Hemoglobin Formation In-Vivo After Intravenous Administration of a Hemoglobin-Based Oxygen Carrier in Endotoxemic Rats," <i>Artif. Cells, Blood Substitutes, Immobilization Biotechnol.</i> , 23(3):271-276 (1995)
AR2	Stamler, J.S., "Redox Signaling: Nitrosylation and Related Target Interactions of Nitric Oxide," <i>Cell</i> , 78:931-936 (1994)

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FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION YES NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

AS2	Arnelle, D.R. and Stamler J.S., "NO ⁺ , NO [•] , and NO ⁻ Donation by S-Nitrosothiols: Implications for Regulation of Physiological Functions by S-Nitrosylation and Acceleration of Disulfide Formation," <i>Arch. of Biochem. and Biophys.</i> , 318(2): 279-285 (1995)
AT2	Kondo, T. et al., "Thiol Transport from Human Red Blood Cells," <i>Methods in Enzymology</i> , 252:72-82 (1995)
AU2	Feelisch, M. and Stamler J.S., "Donors of Nitrogen Oxides," <i>Methods In Nitric Oxide Research</i> , John Wiley & Sons Ltd. (1996)
AV2	Stamler, J.S. and Feelisch, M., "Preparation and Detection of S-Nitrosothiols," <i>Methods in Nitric Oxide Research</i> , John Wiley & Sons Ltd. (1996)
AW2	Clancy, R.M. et al., "Nitric Oxide Reacts with Intracellular Glutathione and Activates the Hexose Monophosphate Shunt in Human Neutrophils: Evidence for S-Nitrosogluthathione as a Bioactive Intermediary," <i>Proc. Natl. Acad. Sci. USA</i> , 91:3680-3684 (1994)
AX2	Ignarro, L.J. et al., "Mechanism of Vascular Smooth Muscle Relaxation by Organic Nitrates, Nitrites, Nitroprusside and Nitric Oxide: Evidence for the Involvement of S-Nitrosothiols as Active Intermediates," <i>The Journal of Pharmacology and Experimental Therapeutics</i> , 218(3):739-749 (1981)
AY2	Simon, D.I. et al., "Effect of Nitric Oxide Synthase Inhibition on Bleeding Time in Humans," <i>Journal of Cardiovascular Pharmacology</i> , 26:339-342 (1995)
AZ2	Kumura, E. et al., "Nitrosyl Hemoglobin Production During Reperfusion After Focal Cerebral Ischemia In Rats," <i>Neuroscience Letters</i> , 177:165-167 (1994)

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FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB- CLASS	TRANSLATION YES NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

AR3	Jia, L. et al., "S-Nitrosohaemoglobin: A Dynamic Activity of Blood Involved in Vascular Control," <i>Nature</i> , 380: 221-226 (1996)
AS3	Shiga, T. et al., "Electron Paramagnetic Resonance Studies of Nitric Oxide Hemoglobin Derivatives: I. Human Hemoglobin Subunits," <i>Biochemistry</i> , 8:378-383 (1969)
AT3	Garel, M-C. et al., "Binding of 21 Thiol Reagents to Human Hemoglobin in Solution and in Intact Cells," <i>Eur. J. Biochem.</i> , 123:513-519 (1982)
AU3	Garel, M-C. et al., "Covalent Binding of Gluthathione to Hemoglobin: I. Inhibition of Hemoglobin S Polymerization," <i>J. of Biol. Chem.</i> , 261(31): 14704-14709 (1986)
AV3	Wennmalm, Å. et al., "Dependence of the Metabolism of Nitric Oxide (NO) in Healthy Human Whole Blood on the Oxygenation of Its Red Cell Haemoglobin," <i>Br. J. Pharmacol.</i> , 106:507-508 (1992)
AW3	Kruszyna, H. et al., "Red Blood Cells Generate Nitric Oxide From Directly Acting, Nitrogenous Vasodilators," <i>Toxicology and Applied Pharmacology</i> , 91:429-438 (1987)
AX3	Pietraforte, D. et al., "Role of Thiols in the Targeting of S-Nitroso Thiols to Red Blood Cells," <i>Biochem.</i> 34:7177-7185 (1995)
AY3	Stamler, J.S. et al., "Blood Flow Regulation by S-Nitrosohemoglobin in the Physiological Oxygen Gradient," <i>Science</i> , 276:2034-2037 (1997).
AZ3	Moya, M.P. et al., "S-Nitrosothiol Repletion by an Inhaled Gas Regulates Pulmonary Function," <i>PNAS</i> , 98(10):5792-5797 (2001).
AR4	Pawloski, J.R. et al., "Export by Red Blood Cells of Nitric Oxide Bioactivity," <i>Nature</i> , 409:622-626 (2001).

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DATE CONSIDERED